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(71) Applicant
George Oldfield Limited

(Incorporated in the United Kingdom)

35 Taunton Road, Sale, Manchester, M33 5DD,
United Kingdom

(72) Inventor
Christopher G Curl

(74) Agent and/or Address for Service
Wilson, Gunn and Ellis
41-51 Royal Exchange, Cross Street, Manchester,
M2 7BD, United Kingdom

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(54) Shelving

(57) A shelf construction comprises four hollow members (10) integral with each of which is a channel member (15). The hollow members (10) are interconnected via corner pieces (20). A support surface is received in the channels defined by the channel members (15) and is further supported by a lip (27) provided on each of the corner pieces (20). A tapered bore (22) extends vertically through each corner piece (20). Each bore (22) is received on a collet, each collet being mounted on a post.

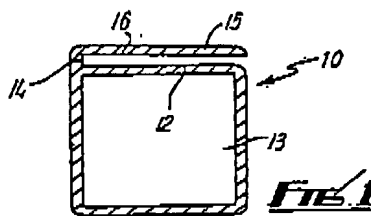


Fig. 1

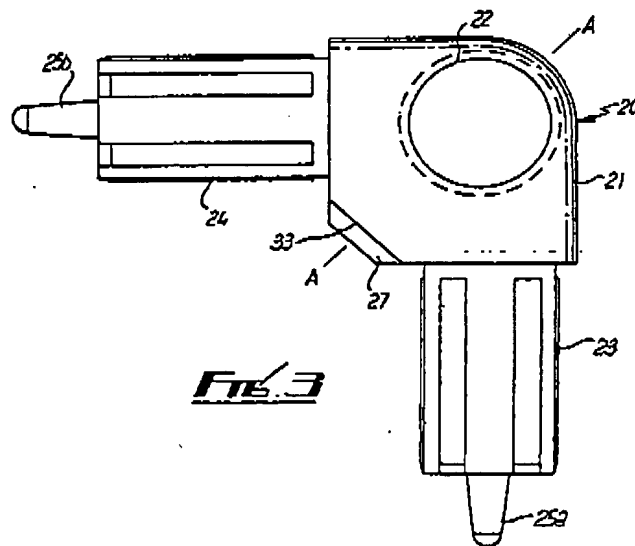


Fig. 3

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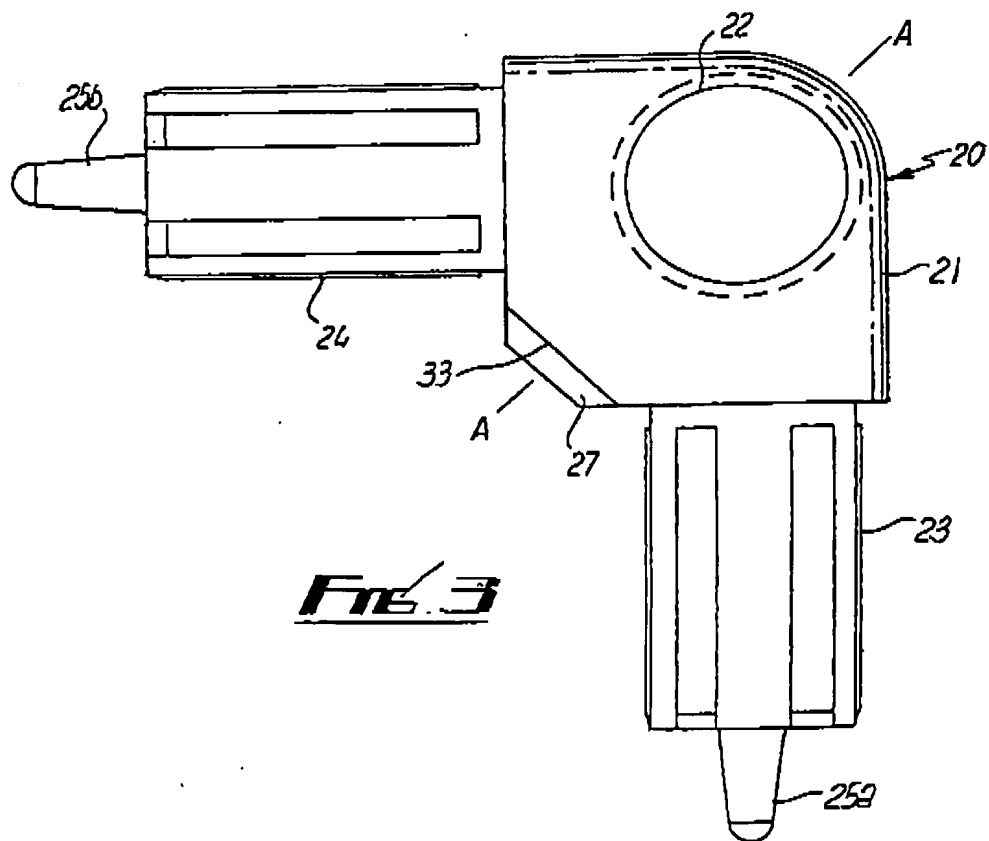
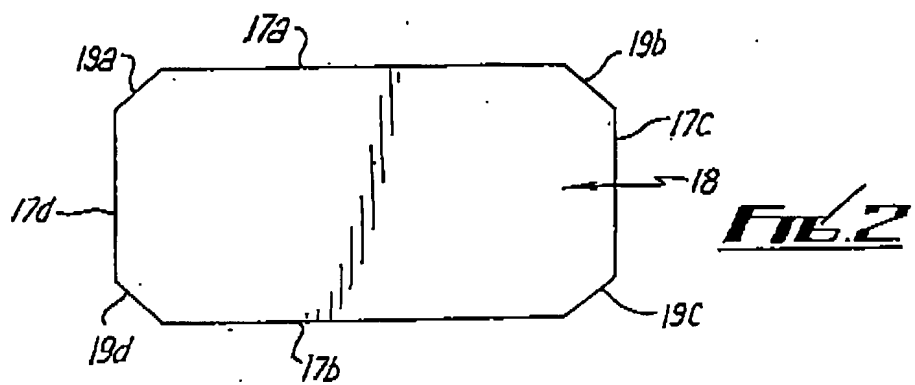
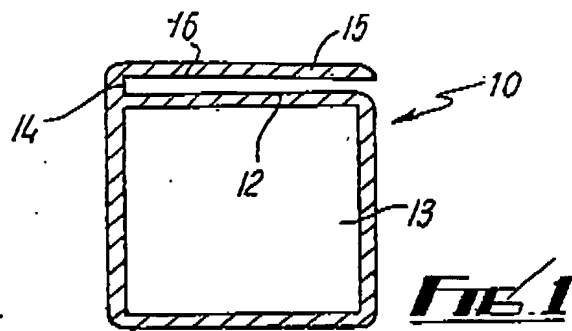
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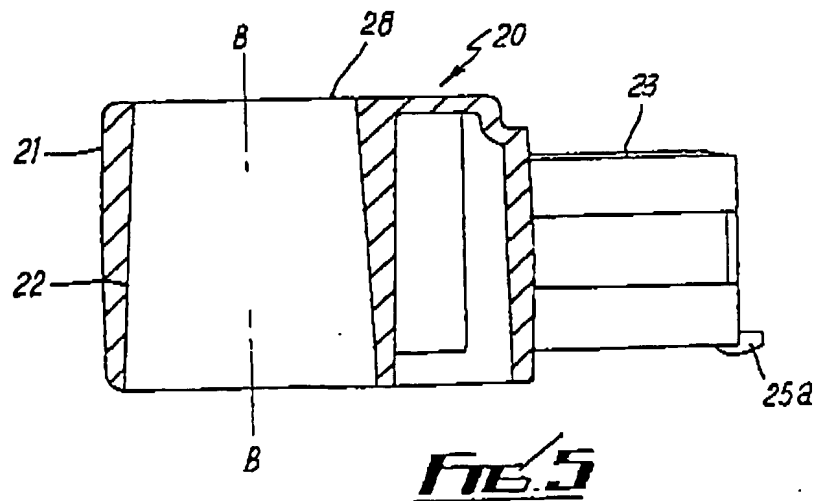
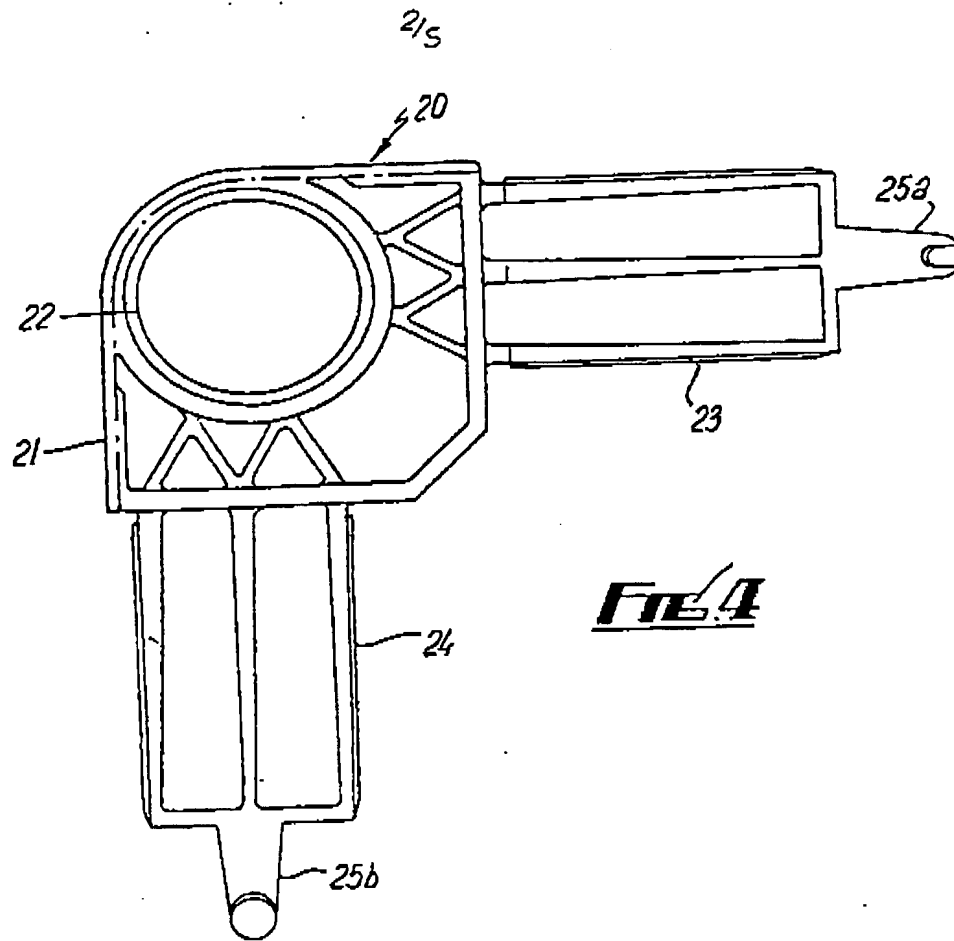
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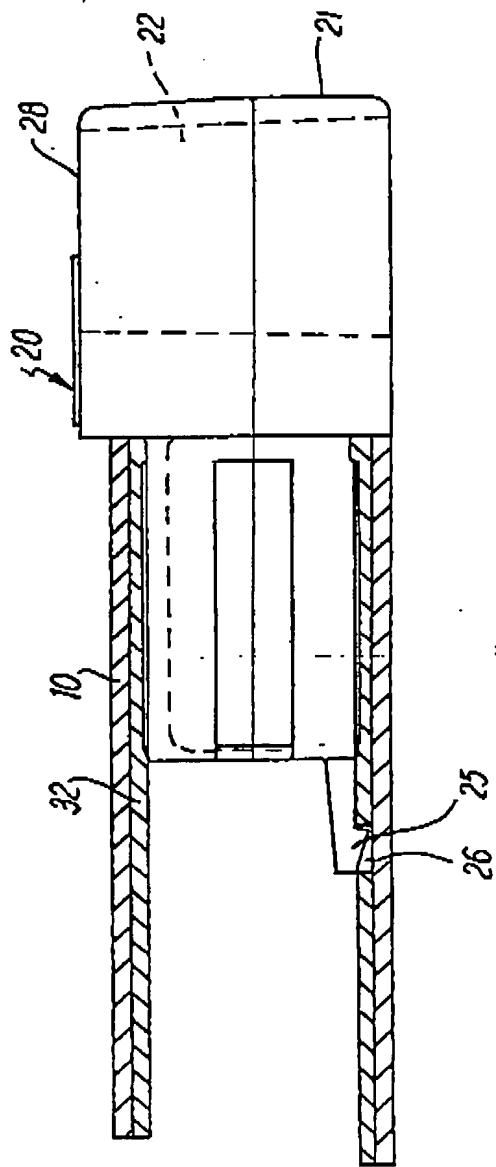


Fig. 6

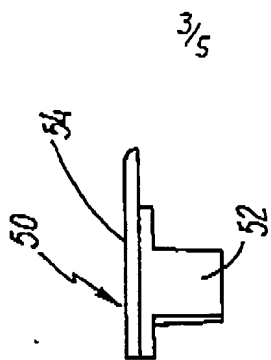
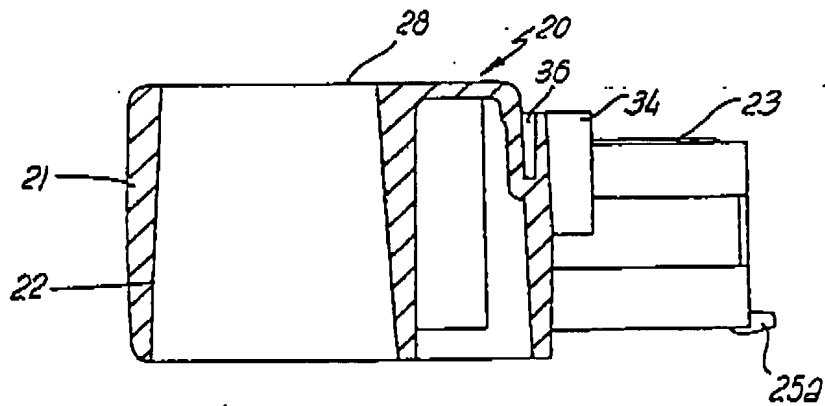
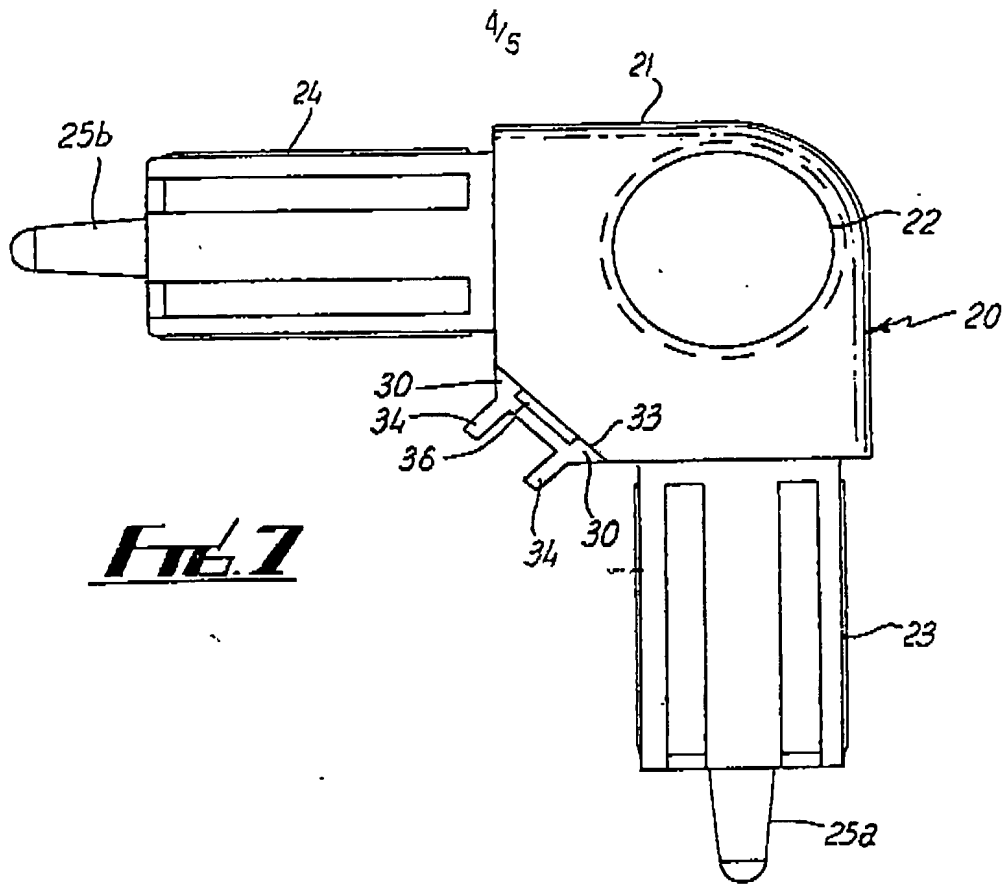


Fig. 9



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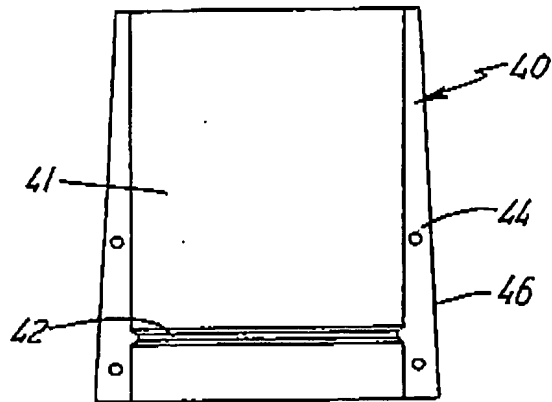


Fig. 10

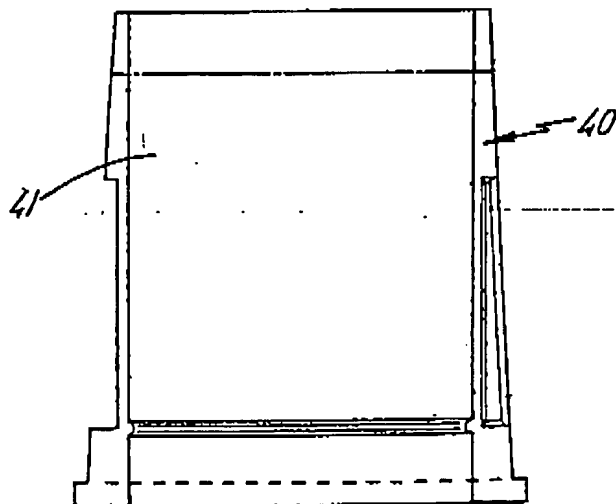


Fig. 11

SHELVING

This invention relates to shelving, particularly, but not exclusively to catering shelving.

It has hitherto been common practice to construct
5 a shelf which comprises a large number of welded joints. For example, it is known to form a shelf of a mesh type construction comprising a number of longitudinal and transversely positioned wire rods, each of the ends of the wire rods being welded to a
10 rectangular frame formed from two parallel spaced apart channel sections joined by transverse members and each longitudinally disposed rod also being welded to each transversely disposed rod.

Another common type of shelf construction.
15 comprises a substantially rectangular metal plate, the corners of which are cut so as to enable folding of the edges of the plate. The folded edges of the plate are subsequently welded to each other, thus completing the construction of the shelf.

20 According to the invention there is provided a shelf comprising a support surface, a hollow member, a channel member integral with said hollow member, said channel member being adapted to receive an edge of said
25 support surface.

According to a preferred embodiment of the

invention there is provided a shelf, as hereinbefore defined, comprising a plurality of said channel members, said channel members being engaged by a plurality of connecting means, said channel members in
5 combination with said connecting means engaging at least a part of the periphery of said support surface.

In order that the invention may be more readily understood, a specific embodiment thereof will now be
10 described by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 is a cross section of one embodiment of the integral channel member and hollow member of the invention;

15 Fig. 2 is a plan view of one embodiment of the support surface of the invention;

Fig. 3 is a plan view of one embodiment of the connecting means of a preferred embodiment of the invention;

20 Fig. 4 is an underside view of Fig. 3;

Fig. 5 is a cross section of Fig. 3 taken along the line A-A;

Fig. 6 is an end elevation of Fig. 3 showing the configuration of suitable lock means for locking the
25 connecting means of the preferred embodiment of the invention to the hollow member of the invention;

Fig. 7 is a plan view of an alternative embodiment of the connecting means of the preferred embodiment of the invention;

Fig. 8 is a cross section taken along the line A-A
5 of Fig. 6;

Fig. 9 is a cover for the alternative embodiment of the connecting means of Fig. 7;

Fig. 10 is a side elevation of part of a suitable shelf support means for the invention; and

10 Fig. 11 is a side elevation of an alternative embodiment of part of a suitable shelf support means of the invention.

Referring now to Figs. 1 and 2, a hollow member 10, for example a box member of, for example, substantially one inch interior diameter, forms an open ended bore 13. Said open ended bore 13 of hollow member 10 may receive a reinforcing structure 32 (Fig. 6) said reinforcing structure having an open ended bore such as, for example, an open ended hollow
20 steel tube. Said hollow member 10 is integral with a channel member 15, defined by surfaces 14 and 16 and surface 12 of said hollow member 10. Said hollow member 10 and integral channel member 15 are formed, for example, from plastics, glass-reinforced plastics
25 or steel, for example by extrusion. Each edge 17a to 17d of a support surface 18 is received within one of

such channel members 15.

Said support surface 18 is constructed from any suitable material which has sufficient rigidity so as to support a desired load, for example, from stainless steel. Said support surface 18 is, for example, substantially rectangular in shape and is provided with bevelled corners 19a to 19d.

Connector means 20, for said hollow members 10 are shown in Figs. 3 to 6. Said connector means 20 comprises a body 21, through which a tapered bore 22 is provided, said tapered bore 22 preferably having reduced diameter towards the upper surface 28 of said body 21. Elongate members 23 and 24 are constructed so as to project from said body 21 at, for example substantially 90° to one another and at substantially 90° to the axis B-B of said tapered bore 22. The dimensions of elongate members 23 and 24 are such that they may be received in said open ended bore 13 of the reinforcing structure 32 which is situated in the open ended bore 13 of hollow member 10.

Fig. 6 shows an example of suitable lock means for holding the connector means 20 and hollow member 10 in position. A simple clip 25 located on said elongate member 23 is received in a recess 26 located in reinforcing structure 32. In an alternative embodiment of the invention where the reinforcing structure 32 is

absent and the hollow member 10 provides the necessary reinforcement, said clip 25 may be releasably received in a recess in said hollow member 10. Four such connector means 20 may be used, each engaging two hollow members 10.

A lip 27 may be provided on said body 21 so as to further support said support surface 18 at the bevelled edge 19 of said support surface. However, in view of the strict manufacturing tolerances necessary to ensure that there is no gap between the bevelled edge 33 of the body 21 of corner piece 20 and the bevelled edges 19a to 19d of the support surface 18, the lip 27 of the corner piece 20 may be replaced by the arrangement shown in Figs. 7 to 9.

Referring now to Figs. 7 to 9 bevelled edge 33 of the corner piece 20 is provided with a flange 30. A plurality, for example, two as illustrated elongate projections 34 extend from said flange 30 at substantially ninety degrees to the bevelled edge 33, substantially parallel to one another and in the same plane as the flange 30.

A slot 36 is provided within said flange 30, the slot 36 being parallel to said bevelled edge 33 of the body 21 and positioned between said bevelled edge 33 and said elongate projections 34.

In practice the connecting pieces 20 and hollow

members 10 are arranged as previously described with the support surface 18 being supported by the channel members 15. The support surface is additionally supported by elongate projections 34 at each of the bevelled corners 19a to 19d of the support surface 18.

The shape of the bevelled corners 19a to 19d of the support surface is such that said corners 19a to 19d defines a gap with the bevelled edges 32 of the connecting pieces 20 and the support surface 18 does not extend over the slot 32 in flange 30.

A cover 50 manufactured from, for example, plastics material or glass-reinforced plastics may be provided so as to cover the gap between the support surface 18 and the bevelled edge 32 thus providing an enhanced visual effect without the need for highly accurate manufacturing tolerances.

The cover 50 comprises a profiled member 54 the shape of which is such that it substantially covers the gap between the bevelled edges 33 of the corner pieces and the bevelled edges 19a to 19b of the support surface. One example of such a corner piece is shown in Fig. 9.

A tenon 52 projects from the underside of the profiled member 54 and is receivable in slot 36 so as to secure the cover 50 in position.

Referring now to Figs. 10 and 11, as already

mentioned the bore 22 through the body 21 can be seen to be tapered towards the upper surface 28 of said body 21. Each body 21 is mounted on a shelf support means 40, part of which is shown in Fig. 10. The shelf support means 40 comprises, for example, a post 41 on which is situated a groove 42 and a collet 44. The collet 44 is manufactured from, for example, plastics material. For ease of manufacture the collet may comprise two interconnectable members. The collet 44 is slidably received on said post 41 until the rib in collet 44 engages the groove in post 41. In one embodiment the exterior surface 46 of the collet 44 is tapered towards its upper end as is shown in Fig. 10. The bore 22 of connector means 20 is slidably received on said post 41 until the bore 22 engages in collet 44. There, a force fit due to the tapered nature of the bore 22, prevents the body 21 of connector means 20 and thus the channel member 15 and support surface 18 from sliding down said post 41.

A rib (not shown) may be situated at the base of the collet 44 on the exterior thereof which may support the connecting member 20 or in an alternative embodiment as shown in Fig. 11 the collet 44 may be provided with a groove which will receive a rib (not shown) formed integrally with the inner surface of the tapered bore 22 through the body 21 adjacent the upper

surface 28 of said body 21.

Thus a shelf can be constructed which comprises substantially no welded joints and substantially no folded joints. These two types of joint are both time consuming and labour intensive to manufacture. The shelf of the present invention is thus more economic to manufacture, yet simple tests have shown the shelf of the present invention to be at least of similar strength to the types of shelf disclosed in the prior art.

It is to be understood that the above described embodiment is by way of illustration only and that many modifications may be made without departing from the spirit of the invention.

CLAIMS

1. A shelf comprising a support surface, a hollow member, a channel member integral with said hollow member, said channel member being adapted to receive an edge of said support surface.
2. A shelf as claimed in claim 1 comprising a plurality of said hollow members, said channel members being engaged by a plurality of connecting means, said channel members in combination with said connecting means engaging at least a part of the periphery of said support surface.
3. A shelf as claimed in claim 1 or claim 2, wherein a reinforcing structure is received in said hollow member.
4. A shelf as claimed in claim 3, wherein said reinforcing structure comprises a hollow tube.
5. A shelf as claimed in claim 3 or claim 4, wherein said reinforcing structure is made of metal.
6. A shelf as claimed in any of claims 2 to 5, wherein said connecting means comprises a body having a bore passing therethrough and a plurality of elongate members extending from the body substantially perpendicular to the vertical axis of the bore.
7. A shelf as claimed in claim 6, wherein the plurality of elongate members extend from the body substantially perpendicular to one another.
8. A shelf as claimed in any of claims 2 to 7, wherein the bore passing through the body is tapered having reduced diameter towards the upper surface of said body.
9. A shelf as claimed in any preceding claim, wherein said support surface has a substantially flat rectangular shape, the corners of which

are bevelled.

10. A shelf as claimed in any of claims 2 to 9, wherein cooperating lock means are provided on the connecting means and the hollow member.

11. A shelf as claimed in claim 10, wherein the cooperating lock means comprises a clip receivable in a recess.

12. A shelf as claimed in any of claims 2 to 11, wherein said connecting means comprises a lip, said lip being adapted to support at least a part of said support surface.

13. A shelf as claimed in any of claims 2 to 12, wherein a flange extends from said body, mutual engagement means being provided in said flange and in a cover, said cover being adapted to be located above a gap defined between said body and said support surface.

14. A shelf as claimed in claim 13, wherein said material engagement means comprises an aperture and a projection adapted to be received in the aperture.

15. A shelf as claimed in any preceding claim, wherein said shelf is mounted on shelf support means.

16. A shelf as claimed in claim 15, wherein said shelf support means comprises a post, cooperating means being provided on the post and the bore of the connecting means.

17. A shelf as claimed in claim 15 or claim 16, wherein the shelf support means comprises a collet mounted on a post, cooperating engagement means being provided between the collet and the bore of the connecting means.

18. A shelf as substantially hereinbefore described with reference to Figures 1 to 6, 7 to 9, 10 to 11.

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